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ABSTRACT

The use of the World Wide Web for promoting learning provides great potential for both students and faculty. Using both synchronous and asynchronous interactions permits the professors and the students to maximize their time together and utilize their individual learning and presentation skills in a collaborative effort that yields substantial dividends in the form of learning and productivity. This paper focuses on one course, "Reading in Content Areas," that is facilitated through the use of the interactive opportunities provided by the World Wide Web. The specific course components and their use are described, including the syllabus, discussion group, journals, course Web sites, class notes, and Web quests. Course evaluation results are discussed in terms of: development of a community of emergent professionals, instructor development, student-instructor relationships, conversations over time, and frustration. (Author/AEF)

Creating Optimized Learning Environments: A Course using Interactive Web Elements

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Abstract: The use of the web for promoting learning provides great potential for both students and faculty. Using both synchronous and asynchronous interactions permits the professors and the students to maximize their time together and utilize their individual learning and presentation skills in a collaborative effort that yields substantial dividends in the form of learning and productivity. This presentation focuses on one course, "Reading in Content Areas", that is facilitated through the use of the interactive opportunities provided by the World Wide Web (WWW).

1. Introduction

The Vygotskian concept of the social nature of knowledge construction provides the main theoretical framework for the Web-based course we discuss in this paper. The constructivist approach of moving students from passive recipients to active designers of their own systems of learning coincides directly with the "learning to read – reading to learn" theme that guides the Content Area Reading course described herein. In addition, the Vygotskian view of the role of language in mediated discourse provides an excellent foundation for the examination of the relationship between content area reading, learning, and mediated discourse.

The course provides students with the following Web-based functions: 1) an interactive syllabus; 2) a threaded discussion group; 3) a private journal function; 4) web sites particular to the course; 5) class notes arranged by topics, including the instructor's PowerPoint presentations, with notes and web links embedded; 6) web quests that students in the present and former sections of the course design for their own and others' use; 7) an archive of past students' work; and 8) a form for submitting questions to the instructor and/or the technical support person.

2. Background

Wertsch & Bivens (1992) describe a "text mediational view" of the use of dialogic language as a means for making connections between "old" and "new" knowledge. In the text mediational view, students take a much more active role in negotiating both the meaning of the content as well as the structure and context in which the content is uncovered and examined. In essence, learning is a "mediated" transaction – one in which language serves as the moderator of the process. Rather than serving a purely didactic, information-processing function, language in the text mediational view provides a means for dynamic dialog to serve as the catalyst for the creation of new meanings and functions. The focus moves from transmission to social construction.

Equally informative for our work is Tharp and Gallimore's (1988) concept of "instructional conversations" as a means of providing students with situations in which a text mediational view may flourish. Ordinary classroom discourse, to say nothing of college lectures, is generally not characterized by a discernible level of peer-driven dialog. In fact, it seems the direct instruction/lecture model utilized in most typical university classrooms rarely leads to a socially-negotiated knowledge base. Students in such environments typically are not engaged in bringing to bear their existing personal and/or professional knowledge – combined with the perspectives of their peers – to form a new, negotiated palette of meanings to carry with them into their own classrooms. Realizing this, and in search of an alternative perspective for this course, we have drawn on a combination of the *text mediational view* and *instructional conversations* to provide the foundation of the web-based learning environment described in this paper. The result has fulfilled on its promise of an environment in which the creation of shared knowledge is inherently fostered and continuously recognized as paramount by both the students and the instructor.

3. Specific Course Components and their Uses

3.1 The Syllabus

The syllabus of "Content Area Reading" explains the requirements and contents of the course, and in addition provides several web links. The first of these is the link to the web site of the course textbook, *Content Area Reading*, by Richard and Jo Anne Vacca (1999). Here the students find chapter outlines and guides (activities, learning logs, and web page links related to the topic of each chapter) as well as "Content Area Links," an index of teacher resources on line.

Within the syllabus students also find a link that allows them to create a profile of themselves, and thus to "register" themselves for the interactive elements of the course. Once they do this, they can participate in the course discussion and electronic journal features of the course. The syllabus also contains links to instructions for the web quest requirement of the course, along with instructions for downloading the latest version of Netscape Communicator that includes a simple web page authoring tool, Page Composer.

3.2 The Discussion Group

The course discussion group is an online threaded discussion in which all students participate. Though the professor does not usually contribute to this, he is able to monitor the discussion and respond to individuals or the group via the discussion or in class. Students choose the topics of their discussion, and these are usually related to an issue that is brought up in class. As a starter for the semester, each student is asked to make a first entry on the topic, "Why I am taking this course." From that point onward, the discussion meanders as most discussions do, taking on a life somewhat of its own. Depending on the number of students enrolled in the course, and their particular preferences, discussion participation will vary in intensity semester to semester. The discussion group is visible to those who are not taking the course; however, participation is limited only to those students currently enrolled in the class. Enrolled students use their unique usernames and passwords to make postings to the discussion group.

3.3 The Journals

Students make entries to their journals once or twice a week. They are instructed to use the journal as a record of reflections and reactions to the course that only they and the professor will access. When a student posts an entry, the professor receives an automatically generated e-mail message that notifies him of the post. Within 24 hours, he opens the student's journal, reads the latest post, and replies via the e-mail note. This avoids the tendency to let student journals pile up as with paper copy that has to be read en masse at the end of each semester. It also insures a continuous flow of feed back and response between professor and student. The final journal entry for each student is a required self-evaluation in terms of the individual's goals in taking the course.

3.4 Course Web Sites

An index of course web sites is provided, including 1) the web site for the textbook, 2) Kathy Schrock's home page, and 3) a locally maintained site called The Content Literacy Information Consortium (CLIC), with hundreds of content-specific, on-line resources, as well as professional organizations, journal articles and various other instructional artifacts. The latter is also a site to which students may add on-line resources as they find them and wish to share with others.

3.5 Class Notes

This link provides access to the professor's notes for each class session, created in MS Power Point and saved in HTML format, including notes on each slide. Slides often contain hypertext links related to the topic and links to electronic reserves placed on line by the instructor. The class meets in a computer lab where at the beginning of each class session, students access the course web page, turn to class notes, and open the notes for the day. They then use a process of think, pair, and share to think about each slide/notes combination, pair up with a partner to compare their own notes made on the Power Point handouts page, and share ideas with the whole class. The class discussion centers on the questions and comments of the students in response to the notes. More often than not, students seem to forget or ignore the author of the notes and react to the ideas in the abstract. This can create a much richer class discussion than if the students were responding to a lecture.

3.6 Web Quests

Web quests are created by the students using the model and template provided by Bernie Dodge (the creator of Web Quests). Each student creates a professional web quest for teachers and a student web quest on a topic of their own choice for classroom use. These are posted on the class web page as they are completed, usually near the end of the semester, and each semester's work is archived and accessible for later use. The motivation for this requirement is based in the conviction that, increasingly, "reading in content areas" will be defined by access to topics of the curriculum on the web. One can envision the day when the entire curriculum of American high schools is cast in the form of web quests, requiring reading and study of multiple sources in study of all content to meets the demands of criterion-based curriculum. When that day comes, student who have experienced courses such as the one described here will be prepared to guide their students in the use of the web in pursuit of knowledge and understanding.

4. Discussion and Evaluation

4.1 Mode of Inquiry

Each semester, class participants are asked to submit a self-evaluation describing personal learning outcomes as a result of the course. Also, each submits a course evaluation, from which much useful information is drawn. Finally, the authors read the journal entries and analyzed the discussion group strands, looking for themes and categories that emerged from the course experience, as well as relationships between categories that become apparent.

4.2 Data Sources

The primary data sources for this study were the students' on-line journals, the evaluation reports, and interviews conducted by the authors. The students in the course are primarily graduate-level students seeking a master's degree in reading education. However, the students do represent a wide variety of content areas. Most are in-service teachers, though a few are not currently in a classroom, and there are occasionally one or two who have yet to complete their student teaching experience. Each of the students submits a self-evaluation, as well as a standardized course evaluation.

4.3 Results

The data analysis presented several emergent themes and categories that appeared throughout as a result of the web-based learning environment. First, a strong *community of emergent professionals* develops in the course as a result of the web-based discussion group. Second, the experience with the web-based learning environment results in a level of *instructor development* that, according to the instructor, would have been much less likely without the experience. Third, both the instructor and the students report a higher degree of development of *student-instructor relationships* as a result of the web-based learning experience. Fourth, the web-based environment fosters an increase in the *maintenance and sustenance of conversations across time* – rather than the initial belief of sustenance over distance – though distance was also addressed. Fifth, there still exists a strong sense of fear where technology and instruction are concerned, and for a few students this web-based experience did little to allay those fears. Finally, there appears to be a strong relationship between the student-instructor relationships and the instructor development resulting from the course experience. This relationship seems to provide the foundation for a higher degree of professional development for the students and a higher level of teaching from the instructor.

Community of Emergent Professionals

Perhaps the most interesting--and compelling--outcome of this course has been the development of a professional community of like-minded peers that seems to emerge with each group. The course discussion group seems to be the strongest catalyst for this. As evidenced by the following student's comment, it appears that the type of dialog enabled allows for a level of professional growth that may otherwise be missed:

> Thanks to the listservs and our own class homepage, I have been able to exchange ideas with my peers. This is the first time I have been able to do so because I don't live near campus. I feel that these discussions have greatly enhanced my participation in the broadening of our group "mind". Up to this point, I have only had brief discussions during breaks or on the way to the parking lot after class. By then, my main goal has been getting home. I think that every class should either have a discussion page or at least have access to such a page. This would help students who commute and students who are physically challenged.

Not all discourse opportunities held equal appeal with all students. Some preferred journaling, while others preferred the more community-based dialog:

> These are the areas on which I am basing my self-evaluation: (A) attendance & participation in class discussions; (B) participation in discussion group on the computer; (C) participation in the Read-L discussion group...this is how I would rate myself: (A)5; (B)5; (C)3 (I participated by reading and thinking about the ideas, but I chose not to enter the discourse) ...

It is interesting that this particular student--a fairly active contributor to the course discussion group--chose *not* to participate in the READ-L listserv, a more distributed mechanism that included content area reading students from several other universities.

Instructor Development

The motivation for the turn to technology in this course lay in the dissatisfaction of the instructor with the effect he was getting from business as usual. PowerPoint presentations were fine, but they ultimately presented old content in new wrappings. How could anyone advocate for literacy in a community of cooperative learners from behind a lectern? So the leap was taken, and the restructured course began to move more toward transaction and away from transmission. But transactions are double-edged, and the first change to be noticed was not in the students but in the teacher. Half way through the first semester, struggling daily to upgrade, reform, and expand the

course with technology, one remark from the professor summed up the early effects: "I don't know if this is creating a better class, but I do know it's making me a better teacher."

Student-Instructor Relationships

The proof of this was to come later, near the end of the course when students were asked to comment on the course from their side of the desks. Comments like the following cast brighter light on the effects the instructor was getting:

> I soon found out that Dr. Estes was instructing us in a way that he hopes we might instruct our students. What better way to learn about a method than to experience it for oneself! While it did take me awhile to get myself going, once I found some direction, I was very motivated to put the time into this course because I was in charge!
>
> The content was extremely challenging, (but) if I hadn't taken this course I would not know nearly as much as I do now about the internet. I never realized the importance of technology and the World Wide Web in my classroom before this class. Very important for teaching in today's classrooms! Every teacher should take this course!
>
> On a personal note, Tom, this class has been wonderful for me and I truly enjoyed it. I have a new enthusiasm for the teaching of reading, as well as a new outlook on what reading is. It is beyond the word calling and skills I grew up with and taught the first 6 years of my teaching career. I thank you for sharing it with me.

Conversations over Time

The original impetus for creating an area on the course web site for discussions was to extend those discussions across space. We anticipated that students would engage in more meaningful dialog if they could converse with peers and with the instructor from home or work. Interestingly, more students reacted to the opportunity to engage in more longitudinal discussions as the more attractive aspect of the discussion group, as evidenced by the following students' comments:

> I have just spent some time going through lines of discussion on the discussion group. I feel that this is a good use of the computer and my time. In a way, I feel that it extends my class time.

and

> The discussion group was a useful way to communicate with peers outside of class and keep conversations going about various topics related to class.

In fact, a number of students requested (and received) permission to participate in the current conversations, even after they were no longer enrolled in the course:

> I participated in the Content Area Discussion Group when I could add anything useful. I will miss reading and sharing ideas with this class. They all have so much to add from their various backgrounds. How long will this discussion page be available? I need to make notes of various suggested web sites to keep in my personal book I am creating with the web sites suggested by our class. Will you do this again? I would like to continue "listening in" on the discussions.

Frustration

Although the results presented in this paper seem to suggest a generally successful experience, it is important to note that frustration with the technology and with the process itself

certainly exists among participants. Issues of access, expertise, availability, and ease-of-use are still common and serve as barriers to some students. Whereas the majority of students are able to persevere, some have more difficulty than others--and some are more successful than others. As one student offered:

> My internet project was designed to familiarize myself with the internet so I felt comfortable "surfing". I had to overcome a lot of frustration in fulfilling this requirement because as a newcomer to the Internet I couldn't ever seem to get anywhere.

4.0 Educational Importance

Students in grade school and high school today take the computer for granted, and many, if not most, use the World-Wide Web as a source of information in their research and study at least some of the time. Teachers, by contrast, often do not recognize the value of the Web as a source of information. A new generation gap has arisen as a byproduct of the age of information technology. A content area reading course seemed the ideal place to begin to close that gap. The goals of the course include developing techniques to help students close the gap between the potential of the computer and its realization by most teachers. Many of the graduate students in this course were only marginally facile with technology at the start. By the end of the course, virtually all do adopt the computer, and specifically the Web, as a tool for both their own teaching and their students' learning. For most, this course forces a remarkable paradigm shift that will affect teachers' practice to the ends of their careers.

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